



Fact Sheet

Aquifer Protection Permit #P-105912

Place ID 128592 , LTF 44985

Arroyos Preserve Wastewater Treatment Plant

The Arizona Department of Environmental Quality (ADEQ) proposes to issue **an amendment** to the Aquifer Protection Permit for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to A.A.C. R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). The purpose of BADCT is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., local subsurface geology) to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer, or to keep pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	Landway Development Corporation
Mailing Address:	P.O. Box 3704 Glendale, Arizona 85311
Facility Name and Location:	Arroyos Preserve Wastewater Treatment Plant Approximately 1 mile north of 53 rd Street and 1 mile west of Old Yuma Road.

Regulatory Status

The Aquifer Protection Permit (APP) application was received July 23, 2007. At time of permit issuance, there are no active Notices of Violation (NOVs) and the permittee is considered to be in compliance.

Facility Description

The proposed WWTP would provide service to the Arroyo Preserve Subdivision in La Paz County, located 6 miles southwest of Quartzite in NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 19, T3N, R 20W. The proposed subdivision will consist of about 129 homes on 40 acres. A public water system using groundwater will be constructed to serve the subdivision.

The Arroyos Preserve Wastewater Treatment Plant (WWTP) has the capacity to collect and treat a maximum average monthly flow of 0.042 million gallons per day (mgd). The treatment process consists of influent lift station, head works with bar screen & flow equalization chamber, anoxic basin, aeration basin, de-nitrification basin, re-aeration basin, clarifier, chlorination, de-chlorination and full noise and odor control. The final discharge of effluent will be through percolation ponds and reused as Class B+ Reclaimed Water for irrigation. All the sludge,

including screenings, grit, and scum, will be hauled off-site for disposal in accordance with State and Federal regulations.

Depth to groundwater at the WRP site is approximately 500 feet and the direction of groundwater flow is to the north-northeast parallel to Tyson wash.

The WRP will produce reclaimed water meeting Class B+ Reclaimed Water Standards (A.A.C. R18-11, Article 3) and may be delivered for beneficial use under a valid reclaimed water permit under A.A.C. R18-9 Article 7.

During the initial start-up period, up to 10,000 gallons per day of influent may be vaulted and hauled off-site to an approved facility as per Table IA-1.

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Center of WRP	33° 35' 15.0" N	114° 15' 7.0" W
Recharge Basin #1	33° 35' 15.0" N	114° 15' 8.3" W
Recharge Basin #2	33° 35' 15.6" N	114° 15' 8.3" W
Recharge Basin #3	33° 35' 15.6" N	114° 15' 7.5" W
Recharge Basin #4	33° 35' 15.2" N	114° 15' 6.9" W

The WRP was designed and shall be constructed according to plans approved by the ADEQ Wastewater, Recharge, & Reuse Unit submitted by Dan Dow, P.E., July 16, 2007. The permittee has provided a 50 feet setback from the nearest adjacent property line which is appropriate for 42,000 GPD WWTP with full noise and odor control. The blowers/motors will be placed in the building and equipped with silencers. All the treatment tanks will be covered and air scrubbers will be installed for odor removal. An aesthetic fence will be constructed around the plant area and will be 6' high.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

The WRP is designed to meet the treatment performance criteria for new facilities with a design flow of less than 250,000 gpd as specified in R18-9-B204.

III. HYDROGEOLOGIC SETTING

The Arroyo Preserve WWTP project site is located in the Parker Basin of the Lower Colorado River Planning area. Groundwater is produced from the basin-fill aquifer and in some wells from a perched aquifer. At the Arroyo Preserve location, depth to water is about 500 feet below land surface. A perched aquifer which yields water to private wells is encountered at depths of about 250 to 300 feet below land surface. The perched aquifer yields about one to 10 gallons per minute.

A clay aquitard is encountered at about 500 feet bls in the area. The perched aquifer used by private wells lies above the aquitard. The regional basin-fill aquifer lies below the clay aquitard and is encountered at about 500 feet bls. There is one existing water supply well on the Arroyos Preserve property which has a static depth to water of about 477 feet bls.

One supply well currently exists for the proposed subdivision, information is provided below.

ADWR Number: 55-209607

Location: B(3-19) 19dab

Constructed: May 2006

Depth: 700 ft.

Diameter: 5 in.

Perforated: 480-680 ft.

Another well is planned for future supply and will produce water from the deeper basin-fill aquifer. Discharge from the WWTP is projected at a maximum of 47 acre-feet per year, or about 42,000 gallons per day.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

The Arroyos Preserve property is located about 500 feet from Tyson Wash, the major north-south drainage in the area. Although there are no FEMA flood maps available for the area, there may be a potential for flooding from Tyson Wash. The applicant has demonstrated compliance with floodplain requirements.

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

The permittee is required by rule to demonstrate that pollutants discharged by the facility will not cause or contribute to a violation of aquifer water quality standards at points of compliance (POCs). POC locations are determined by an analysis of a facility's pollutant management area (PMA), the project's discharge impact area (DIA), and locations and uses of groundwater wells in the project area. POC locations are selected to protect off-site uses of groundwater and to allow early detection of any water quality impacts from the WWTP.

Provisions of A.R.S. §49-244 describe a facility's PMA as the limited projected in the horizontal plane of the area in which pollutants are or will be discharged. The PMA includes the horizontal space occupied by any liner, dike or other barrier designed to contain pollutants at the facility. If the facility has more than one discharging activity, the PMA is described as an imaginary line circumscribing all discharging activities.

The DIA is defined by the provisions of A.R.S. §49-201.13. The DIA is the potential areal extent to which pollutants may potentially migrate, due to discharges from the facility.

The existing supply well was sampled for new source approval purposes on July 2, 2007 and samples were analyzed by Turner Laboratories. Analyses indicated that groundwater meets applicable primary drinking water standards. No VOCs, SOCs, or metals were detected above drinking water standards. The only VOC detected was toluene at a concentration of 7.4 µg/L, but its presence may be due to laboratory contamination. Total dissolved solids were rather high at a concentration of 1,500 mg/L. Arsenic was not detected above the laboratory detection limit,

nitrate was detected at a concentration of 1.4 mg/L, and fluoride was detected at a concentration of 0.69 mg/L.

Groundwater flow rate and direction in the deep basin-fill aquifer are not known due to the lack of basin-fill wells in the area. It is assumed that groundwater at the site would flow in the same direction as regional flow, in this case generally north to northeast parallel to Tyson Wash.

Monitoring and Reporting Requirements

To ensure that site operations do not violate Aquifer Water Quality Standards at the point of compliance, representative samples of the effluent shall be collected from the point of discharge from the Dechlorination Unit. The permittee shall monitor the effluent daily for flow rate and fecal coliform, quarterly for total nitrogen, quarterly for metals, anions and cations, and semi-annually for volatile organic compounds (see Section 4.2, Table IA in the permit). To ensure that site operations do not violate the Reclaimed Water Quality Standards for the beneficial use of Class B+ reclaimed water, the permittee shall monitor the reclaimed water at the same effluent sampling point as indicated above. The permittee shall monitor the reclaimed water daily for flow rate and fecal coliform (see Section 4.2, Table IB in the permit). In addition, facility inspection and operational monitoring shall be performed on a routine basis (see Section 4.2, Table III in the permit). Groundwater monitoring is not required.

Point(s) of Compliance (POC)

The location of the POC is determined by an analysis of the Pollutant Management Area (PMA), the Discharge Impact Area (DIA), and locations and uses of groundwater wells in the area. The POC location is selected to protect off-site uses of groundwater, to verify BADCT performance, and to allow early detection of potential impact from facility discharges.

The PMA is described in ARS §49-244 as the limit projected in the horizontal plane of the area on which pollutants are or will be placed. The PMA includes horizontal space taken up by any liner, dike or other barrier designed to contain pollutants in the facility. If the facility contains more than one discharging activity, the PMA is delineated by an imaginary line circumscribing the several discharging activities. The PMA for this facility includes all components of the WRP and the discharge to either the percolation ponds or for Reuse

The discharge impact area (DIA) is defined by ARS §49-201.13. The DIA means the potential aerial extent of pollutant migration, as projected on the land surface, as the result of a discharge from a facility. The DIA for this facility is similar to the aerial delineation as the PMA because of the discharge to the percolation ponds or for reuse at the subdivision and the extensive (500 feet) depth-to-groundwater.

The Point of Compliance (POC) is designated at the following location:

POC #	POC Location	Latitude	Longitude
1	Designated Point of Compliance	33°35'15.8" N	114° 15'6.7" W

The Director may amend this permit to require this well be installed and monitored, or designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

VI. COMPLIANCE SCHEDULE

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section. A copy of the cover letter must also be submitted to the ADEQ Water Quality Compliance Section.

Description	Due by:
3.1 The permittee shall submit a signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department that confirms that the facility is constructed according to the Department-approved design report or plans and specifications, as applicable.	Prior to discharging under this permit and within 90 days of completion of construction.
3.2 Notify of cessation of vault and haul.	Within 15 days of the date of the cessation of the vault and haul activity or when flow reaches 10,000 gpd, whichever comes first.
3.3 Require the permittee to determine the actual percolation rates for recharge basins and demonstrate that the recharge basins have enough capacity to discharge 42,000 GPD of effluent	When the flow reaches 20,000 GPD.

A compliance schedule is included in Section 3.0 of the permit which includes the requirement for submittal of an Engineer's Certificate of Completion, notification of cessation of vault and haul, requirement for groundwater monitoring when the facility exceeds an alert level of 247,500 gallons per day (as a monthly average), submittal of engineer's statement of completion for the equalization basin, effluent pump station, and centrifuge, and engineer's statement of completion for noise, odor, and aesthetic controls.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

Landway Development Corporation, and the Arroyos Preserve WWTP Facility, have demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B). The WRP was designed by Dan Dow of Santec Engineering, employing professional engineers registered in the state of Arizona. The design report dated July 7, 2007 in support of the individual APP includes the noise, odor, and aesthetic controls for a 50 foot setback and adjust the setbacks. The permittee is expected to maintain technical capability throughout the 20 year life of the facility.

Financial Capability

Landway Development Corporation, in support of Arroyos Preserve WWTP, has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The estimated dollar amount demonstrated for financial capability is \$26,900 operating costs and \$21,000 closing costs. The permittee shall maintain financial capability throughout the life of the facility.

Zoning Requirements

The Arroyos Preserve WWTP has been properly zoned for the permitted use and the permittee has complied with all zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(A)(2)(c).

VIII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-108(A))

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-109(A))

The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C. R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division - Groundwater Section - APP and Reuse Unit
Attn: Don Bell
1110 West Washington Street, Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-4613